The textfit package for scaling up text to a desired size[*]

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Contents

1 Introduction

The user needs to be able to specify the width or height for text, and use the largest size necessary to fill that width or height. You can choose whether to have the size increased by simple points, or by using magsteps. Usage: `\scaletowidth{3in}{This is the way of the world}` `\scaletoheight{7mm}{This is the way of the world}` Details are controlled by two options: 'magstep' will make the system use magsteps, not points, and 'noisy' will produce useful messages.

Examples; note that the base font is taken from the current state when you enter the macros. so if you start off with a large font (eg cmr17), it will give a different result from that obtained by scaling up cmr5.

This is the way of the world

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This is the way of the world

Cowabunga!

[*]This file has version number 5, last revised 1994/04/15.

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```
⟨*package⟩
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{textfit}[\filedate]
\newif\ifScalebyMagsteps
\newif\ifNoisyFitting
\NoisyFittingfalse
\ScalebyMagstepsfalse
\DeclareOption{noisy}{\NoisyFittingtrue}
\DeclareOption{magstep}{\ScalebyMagstepstrue}
\ProcessOptions
\newcount \mags@f@r
\newdimen \desired@size
\newcount \r@mainder
\newcount \m@gstepcount
\newcount \m@gsteplimit
\newcount \m@gstepvalue
\newdimen \m@gstepdimen
```

Code for working out the right magstep (this is Phil's bit).

```
\def \magsteps {\afterassignment \m@gsteps \m@gsteplimit = }
\def \m@gsteps
    {\let \@r = \or
     \def \or {\noexpand \or}%
     \m@gstepdimen = 0.166667 \maxdimen
     \m@gstepvalue = 1000
     \m@gstepcount = 0
     \def \magstep {}%
     \loop
     \ifnum     \m@gstepcount < \m@gsteplimit
                \advance \m@gstepcount by 1
                \ifnum \m@gstepvalue > \m@gstepdimen
                        \advance \m@gstepcount by -1
                        \message {Sorry --- integer overflow would occur if
```

```
                                        I went any further; stopped at
                                                \the \m@gstepcount.}
                        \m@gsteplimit = \m@gstepcount
                \else
                        \multiply \m@gstepvalue by 12
                        \multiply \r@mainder by 12
                        \divide \r@mainder by 10
                        \advance \m@gstepvalue by \r@mainder
                        \r@mainder = \m@gstepvalue
                        \divide \m@gstepvalue by 10
                        \multiply \m@gstepvalue by 10
                        \advance \r@mainder by -\m@gstepvalue
                        \divide \m@gstepvalue by 10
                        \ifnum \r@mainder < 5
                               \edef \magstep {\magstep \or \the \m@gstepvalue}%
                        \else
                               \advance \m@gstepvalue by 1
                               \edef \magstep {\magstep \or \the \m@gstepvalue}%
                               \advance \m@gstepvalue by -1
                        \fi
                \fi
     \repeat
     \edef \magstep ##1%
          {\noexpand \ifcase ##1
                        1000\magstep
           \noexpand \else 0%
           \noexpand \message
                {Sorry --- \string \magstep \space ##1
                                is not in range 0 .. \the \m@gsteplimit}%
           \noexpand \fi
           \noexpand \relax
          }%
     \let \or = \@r
    }
\magsteps 63
\def \Fontname #1{\expandafter \strip@size \fontname #1 }
\def \strip@size #1 #2#{#1\void@@@}
\def \void@@@ #1{}
\gdef\n@d#1.#2:{#1}
\def \@scaletofit[#1]#2#3{%
     \def\Hb@x{h}\def\H@rV{#1}%
     \ifx\H@rV\Hb@x\def\C@mpare{\wd}\else\def\C@mpare{\ht}\fi
     \desired@size #2
     \def\curr@fontname{\Fontname \font {} }%
     \ifScalebyMagsteps
        \mags@f@r \z@
        \setbox 0 = \hbox{#3}%
        \def\@increment{1}%
\def\@test{<}%
        \ifdim \C@mpare 0 > \desired@size
           \message{When scaling by Magsteps, you cannot go downwards!}%
        \fi
        \loop
        \font \temp@font = \curr@fontname  scaled \magstep \mags@f@r
```

```
\setbox 0 = \hbox{{\temp@font #3}}%
        \ifNoisyFitting
          \message {Trying \noexpand \magstep \the \mags@f@r...}%
        \fi
        \ifdim \C@mpare 0 \@test \desired@size
           \advance \mags@f@r by \@increment
        \repeat
        \ifnum \mags@f@r=\z@
           \mags@f@r1
         \fi
         \advance \mags@f@r by -\@increment
     \else
        \font\temp@font=\curr@fontname at1pt
        \setbox 0 = \hbox{{\temp@font #3}}%
        \@tempdima\C@mpare0
        \multiply\@tempdima by 500 %\@m
        \def\foo@@{\expandafter\n@d\the\@tempdima:}%
        \@tempdimb\desired@size
        \divide\@tempdimb by \foo@@
        \multiply\@tempdimb by 500 %\@m
     \fi
     \ifScalebyMagsteps
        \ifNoisyFitting
  \message {The calculated font is \curr@fontname
           scaled \noexpand \magstep \the \mags@f@r}%
        \fi
        \font \temp@font = \curr@fontname scaled \magstep \mags@f@r
     \else
        \ifNoisyFitting
           \message {The calculated font is \curr@fontname ->\the\@tempdimb}%
        \fi
        \font\temp@font=\curr@fontname at \the\@tempdimb
     \fi
     \ifx\H@rV\Hb@x
        \hbox to \desired@size {\hss{\temp@font #3}\hss}%
     \else
        \hbox {{\temp@font #3}}%
     \fi
}
% user interface
\def\scaletowidth{\@scaletofit[h]}
\def\scaletoheight{\@scaletofit[v]}
⟨/package⟩
```